



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/429,626	10/29/1999	CARL EKLUND	730.37246X00	6148

20457 7590 07/02/2003

ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-9889

EXAMINER

TODD, GREGORY G

ART UNIT	PAPER NUMBER
----------	--------------

2157

DATE MAILED: 07/02/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/429,626	Applicant(s) EKLUND, CARL	
	Examiner Gregory G Todd	Art Unit 2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

This is a second office action in response to applicant's amendment filed, 17 April 2003, of application filed, with the above serial number, on 29 October 1999 in which claim 28 has been amended and claims 1-27, 29-30 have been unaltered. Claims 1-30 are therefore pending in the application.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al (hereinafter "Takagi", 6,272,148) in view of Degermark et al (hereinafter "Degermark", IP Header Compression).

3. As per Claim 1, Takagi discloses a method of initiating compression of an IP header of each packet of a stream of packets to be sent from a source apparatus to a destination apparatus in a packet switched network, the source apparatus being connected to the packet switched network by a first node and the destination apparatus being connected to the packet switched network by a second node wherein Takagi discloses:

Art Unit: 2157

- modifying, at the first node, the IP header of a full header packet of the stream of packets so that a destination address field of the IP header contains a second node address indicating a location of the second node (at least col. 25, lines 30-38; col. 26, lines 1-10; Fig. 4);

- transmitting, from the first node to the second node, the full header packet including the modified IP header (at least col. 25, lines 30-38; col. 26, lines 1-10; Fig. 4);

- initiating header compression of IP headers of packets of the stream of packets subsequent to the full header packet, when the second node receives the full header packet including the modified IP header and the inserted routing header (at least col. 13, lines 15-26; Fig. 4).

Takagi fails to explicitly disclose inserting or modifying, at the first node, a routing header in the full header packet of the stream of packets, including context identification (CID) information identifying information of the IP header and a destination address indicating a location of the destination apparatus. Takagi does disclose inserting or modifying a link header on a higher layer being encapsulated to include the original destination (at least col. 22 line 66 - col. 23 line 44), which gives motivation to include the new IPv6 standard of including a routing header, specifically, to include CID information on the outermost layer to be examined first in the full header as disclosed in Degermark (at least Degermark pp. 6; pp. 16 - 17). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate and implement a new IP protocol standard with Takagi's header

compression because this would let it fit a new standard format of including a specific header for routing purposes so as packets could get routed more efficiently.

4. As per Claims 2 and 13.

- each of the first and second nodes is a router (at least Fig. 11).

5. As per Claims 3, 7, 14, and 18.

- compressing IP header of each of the subsequent packets (subsequent compressed tcp/ip header) when IP header compression has been initiated (at least Fig. 5).

6. As per Claims 4, 8, 15, and 19.

- transmitting the subsequent packets including the CID information (link header) without an IP header (at least Fig. 4, 5).

7. As per Claims 5, 9, 16, and 20.

- transmitting each of the subsequent packets including the CID information (link header) with a compressed IP header which includes unpredictable IP header information (at least Fig. 5).

8. As per Claims 6 and 17.

Takagi does not explicitly disclose storing information of the IP header of the full header packet as a context in corresponding relation to the CID information. However, the use and advantages for storing the IP header of the full header packet is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Degermark. Degermark discloses sending a full header packet and a non-TCP CID being associated with a context respective to a non-TCP header (at least

Degermark pp. 7, 8, 23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Degermark's storing the IP information in relation to a specific context and CID because this would allow the original information stored in the IP header to be decompressed and utilized at the end-point, otherwise the original IP information including the destination address would not be known and used for the packet to reach it's final destination.

9. As per Claims 10, 11, 21, and 22.

Takagi does not explicitly disclose decompressing each of the subsequent packets by using the CID information included in the subsequent packet to refer to the stored context. However, the use and advantages for decompressing is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Degermark. Degermark discloses decompressing a header based on the last version of the header received (at least Degermark pp. 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Degermark's decompression so that the last incoming compressed header can be properly decompressed according to the latest context as the latest context could represent something having changed on the first node and therefore the packet can be decompressed accordingly and correctly.

10. As per Claim 23, Takagi discloses a router for use in a packet switched network for initiating compression of an Internet Protocol (IP) header of each packet of a stream of packets to be sent from a source apparatus to a destination apparatus in the packet

Art Unit: 2157

switched network, the source apparatus being connected to the packet switched network by the router and the destination apparatus being connected to the packet switched network by another router wherein Takagi discloses:

- first apparatus which modifies the IP header of a full header packet of the stream of packets so that a destination address field of the IP header contains an address indicating a location of the another router (at least col. 25, lines 30-38; col. 26, lines 1-10; Fig. 4);

- third apparatus which transmits to the another router the full header packet including the modified IP header and the inserted routing header to initiate header compression of the IP header of each packet of the stream of packets subsequent to the full header packet upon receipt in the another router of the full header packet including the modified IP header and the inserted routing header (at least col. 25, lines 30-38; col. 26, lines 1-10; col 13, lines 15-26; Fig. 4).

Takagi fails to explicitly disclose a second apparatus which inserts a routing header in the full header packet of the stream of packets, the routing header having context identification (CID) information identifying information of the IP header in a destination address indicating a location of the destination apparatus. Takagi does disclose inserting or modifying a link header on a higher layer being encapsulated to include the original destination, which gives motivation to include the new IPv6 standard of including a routing header, specifically, to include CID information on the outermost layer to be examined first in the full header as disclosed in Degermark (at least Degermark pp. 6; pp. 16 - 17). Therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to incorporate and implement a new IP protocol standard with Takagi's header compression because this would let it fit a new standard format of including a specific header for routing purposes so as packets could get routed more efficiently.

11. As per Claim 24.

- fourth apparatus which compresses the IP header of each of the subsequent packets (subsequent compressed tcp/ip header) when IP header compression has been initiated (at least Fig. 5).

12. As per Claim 25.

- fifth apparatus which transmits the subsequent packets including the CID information (link header) without an IP header (at least Fig. 4, 5).

13. As per Claim 26.

- sixth apparatus which transmits each of the subsequent packets including the CID information (link header) with a compressed header which includes unpredictable IP header information (at least Fig. 5).

14. As per Claim 27.

Takagi does not explicitly disclose a seventh apparatus which stores information of the IP header of the full header packet as a context in corresponding relation to the CID information. However, the use and advantages for storing the IP header of the full header packet is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Degermark. Degermark discloses sending a full header packet and a non-TCP CID being associated with a context respective to a non-



Art Unit: 2157

TCP header (at least Degermark pp. 7, 8, 23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Degermark's storing the IP information in relation to a specific context and CID because this would allow the original information stored in the IP header to be decompressed and utilized at the end-point, otherwise the original IP information including the destination address would not be known and used for the packet to reach it's final destination.

15. As per Claim 28.

- eighth apparatus which compresses the IP headers of each of the subsequent packets (subsequent compressed tcp/ip header) when the IP header compression has been initiated (at least Fig. 5).

16. As per Claim 29.

Takagi does not explicitly disclose a ninth apparatus which stores information of the IP header of the full header packet in corresponding relation to the CID information in response to receipt of the full header packet including the modified IP header and the inserted router header from the another router. However, the use and advantages for storing the IP header of the full header packet is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Degermark.

Degermark discloses sending a full header packet and a non-TCP CID being associated with a context respective to a non-TCP header to initiate compression upon receipt of a full header packet containing a CID (at least Degermark pp. 7, 8, 23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to incorporate the use of Degermark's storing the IP information in relation to a specific context and CID and initiating compression on receipt of a full header CID because this would allow the compression to begin by being notified from a full header, since the second node would not have a CID to decompress the packet with if a first full packet containing the CID were not sent first.

17. As per Claim 30.

Takagi does not explicitly disclose a tenth apparatus which decompresses packets subsequent to the full header packet according to the stored CID information. However, the use and advantages for decompressing is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Degermark. Degermark discloses decompressing a header based on the last version of the header received (at least Degermark pp. 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Degermark's decompression so that the last incoming compressed header can be properly decompressed according to the latest context as the latest context could represent something having changed on the first node and therefore the packet can be decompressed accordingly and correctly.

### ***Response to Arguments***

18. Applicant's arguments filed 17 April 2003 have been fully considered but they are not persuasive. Applicants argue substantially that there is no suggestion in Takagi for modifying the destination address field of an IP header to contain a second node

Art Unit: 2157

address; and that there is no motivation in the prior art to modify Takagi with Degermark; and that with Degermark inserting the routing header, Takagi cannot therefore transmit an inserted routing header as well.

19. In response to applicant's argument that Takagi does not disclose modifying the destination address of an IP header, as the claim language reads, modifying...so that a destination address field of the IP header contains a second node address indicating a location of the second node. This is clearly taught by Takagi. The claim language of modifying merely suggests any sort of modification to the IP address to indicate a different (second) node as the new destination. As previously stated, Takagi discloses a tunneling technique wherein a radio terminal, acting as the new 'second' node, is written to the destination address of the IP header, thereby indicating in the IP datagram header the location of the radio terminal.

20. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the CID information, as outlined by the claims, merely identifies information of the IP header and a destination address indicating a location of the destination apparatus. As Degermark discloses, part of the compression process is to include transmitting a full header

Art Unit: 2157

carrying a CID (at least pp. 6). Therefore, as Takagi discloses using TCP/IP header compression functions (at least col. 22 line 66 - col. 23 line 44), it would have been obvious to use Degermark's compression initiating method of transmitting a full header w/ CID in order to carry out the header compression of Takagi for a the latest IP protocol.

21. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). While Takagi does transmit the modified IP header, as applicant admits, Takagi as modified by Degermark, as rejected, would therefore transmit the inserted routing header as well along with the modified IP header, when Takagi's invention is modified by Degermark.

### ***Conclusion***

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2157

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

23. Bestavros et al, Cisneros et al, Walker, Kumar et al, Taglione et al, Brendel et al, Slane, and Callon along with Deering et al, Balakrishnan et al and Degermark et al are cited for disclosing pertinent information related to the claimed invention. Applicants are requested to consider the prior art reference for relevant teachings when responding to this office action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory G Todd whose telephone number is (703)305-5343. The examiner can normally be reached on Monday - Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (703)308-7562. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-7239 for regular communications and (703)746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.



gt  
June 26, 2003



**ARIO ETIENNE**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100